

In re Application of R. J. Steffan, et al.
U.S. Application No. 10/088,991

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Amendments to the Claims

1. (Currently amended) A method for preparing a single enantiomeric species of an epoxide comprising contacting an alkene with ~~an enzyme comprising~~ a native non-haem diiron-containing monooxygenase and recovering said epoxide produced.
2. (Original) The method of Claim 1 wherein said monooxygenase is a toluene monooxygenase.
3. (Currently amended) A method for preparing an epoxide comprising contacting an alkene with ~~an enzyme comprising~~ a mutated non-haem diiron-containing monooxygenase and recovering said epoxide produced.
4. (Original) The method of Claim 3 wherein said monooxygenase is a toluene monooxygenase.
5. (Original) A method for preparing an epoxide comprising contacting an alkene with a non-haem diiron-containing monooxygenase mutated by the substitution of at least one amino acid residue.
6. (Original) The method of Claim 5 wherein said monooxygenase is a toluene monooxygenase.
7. (Withdrawn) A mutated form of a non-haem diiron monooxygenase which is capable of producing a different ratio of the (R) and (S) enantiomers of an epoxide relative to the ratio produced by a non-mutated form of the non-haem diiron monooxygenase.
8. (Withdrawn) A process for producing a mutated non-haem diiron monooxygenase which is capable of producing a different ratio of the (R) and (S) enantiomers of an epoxide relative to the ratio produced by a non-mutated form of the non-haem diiron monooxygenase comprising performing site-directed mutagenesis of amino acid residues located in the active site of the monooxygenase.

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9. (Original) A process for producing a desired ratio of epoxide enantiomers comprising contacting an alkene with a mutated non-haem diiron monooxygenase.
10. (Original) A process for producing a desired ratio of epoxide enantiomers comprising contacting an alkene with a native non-haem diiron monooxygenase.
11. (Withdrawn) An epoxide formed by a mutated non-haem diiron monooxygenase.
12. (Withdrawn) A reaction product which includes an epoxide compound capable of existing in the (R) variant or (S) variant enantiomeric form, said produce including at least about 90 wt.% of the (R) variant form of the compound based on the total weight of the (S) variant and (R) variant forms of the compound.
13. (Withdrawn) A reaction product which includes an epoxide compound capable of existing in the (R) variant or (S) variant enantiomeric form, said product including at least about 90 wt.% of the (S) variant form of the compound based on the total weight of the (S) variant and (R) variant forms of the compound.
14. (New) The process of claim 9, wherein said desired ratio is 0-100:100-0 of R:S enantiomers.
15. (New) The process of claim 10, wherein said desired ratio is 0-100:100-0 of R:S enantiomers.